

Technical Training Competency 1.6

Competency 1.6 Technical training personnel shall demonstrate a working level knowledge of the process, techniques, and methodology associated with training material development.

1. Supporting Knowledge and/or Skills

- a. Explain why formal and documented training materials are necessary in a formal, systematic approach to training process.
- b. Explain the relationship between learning objectives, training materials, and the presentation of instruction.
- c. Describe the attributes, content and format of a typical, well-written classroom lesson plan.
- d. Describe the attributes, content and format of a typical, well-written laboratory training guide.
- e. Describe the attributes, content and format of a typical, well-written on-the-job training guide.
- f. Describe the attributes, content and format of a typical, well-written self-study training guide.
- g. Explain the use and development of instructional media to support training guides and lesson plans.

2. Self-Study Activities (corresponding to the intent of the above competency)

Below are two web sites containing many of the references you may need.

Web Sites		
Organization	Site Location	Notes
Department of Energy	http://wastenot.inel.gov/cted/stdguido.html	DOE Standards, Guides, and Orders
U.S. House of Representatives	http://law.house.gov/cfr.htm	Searchable Code of Federal Regulations

Technical Training Competency 1.6

Read Section 4.0, “Development,” of DOE-HDBK-1078-94, U.S. Department of Energy Standard, *Training Program Handbook: A Systematic Approach to Training*.

Read Section 3, “Development,” of *The Occasional Trainer’s Handbook*.

- EXERCISE 1.6-A Sketch the major steps taken in the development phase of training.
- EXERCISE 1.6-B Often, resources or previously developed materials are available for your use. Identify some of the considerations for applying these to your training needs.
- EXERCISE 1.6-C Develop a matrix of lesson plan components, and briefly describe each. (Hint: Title, objectives . . .)
- EXERCISE 1.6-D List some of the considerations you should make when choosing among various instructional media.
- EXERCISE 1.6-E List some of the guidelines for developing new or modifying existing instructional materials such as job aids, illustrations, etc.
- EXERCISE 1.6-F Explain how each of the following processes helps to validate your training materials:
- Technical/subject matter expert review
 - Peer review
 - Small-group evaluation
 - First/trial run

3. Summary

Read page 3-20 of *The Occasional Trainer’s Handbook*.

Read page 43 of DOE-HDBK-1078-94, U.S. Department of Energy Standard, *Training Program Handbook: A Systematic Approach to Training*.

Technical Training Competency 1.6

4. Exercise Solutions

EXERCISE 1.6-A Sketch the major steps taken in the development phase of training.

ANSWER 1.6-A Refer to Figure 3-1 Development Phase, in *The Occasional Trainer's Handbook*.

EXERCISE 1.6-B Often, resources or previously developed materials are available for your use. Identify some of the considerations for applying these to your training needs.

ANSWER 1.6-B Prior to using established materials, consider the following:

- Does the instruction meet my objectives?
- Is the instruction appropriate for my target audience?
- Is the instructional content technically accurate? Will it need updating?
- Are the trainer and trainee activities, methods, and media appropriate for my objectives?
- Will the media and materials easily transfer to my needs, or will it take a good deal of effort to make them useful?
- Are there copyright issues or ownership issues?
- Is the software used for materials development still available or easily translated?

EXERCISE 1.6-C Develop a matrix of lesson plan components and briefly describe them. (Hint: Title, objectives . . .)

ANSWER 1.6-C A lesson plan outline provides an organized, easily referenced format for your training delivery. Check with the training office of your organization for established outline formats. If no procedures exist, consider including the following sections in your lesson plan outline:

Lesson Plan Section	Description
Title	Briefly describe your lesson plan.
Objectives	List terminal and enabling objectives for quick reference.
Time	Estimate the time for lesson completion.

Technical Training Competency 1.6

Lesson Plan Section	Description
Date	Identify the date the lesson plan was approved or last revised.
Author(s)	Identify the individual who last wrote or last revised the lesson plan.
Reference publications	List reference publications required to develop or conduct the training.
Prerequisites	List any courses, classes, qualifications, etc., required prior to beginning this instruction.
Media	List media that will be used so the instructor can ensure that all the training materials have been assembled and properly positioned.
Presentation	List sequentially in one column the main points that the trainer should relay to the trainee.
Related activities	List in a parallel column the trainer and trainee actions and cues that support particular lesson plan outline points.

EXERCISE 1.6-D List some of the considerations you should make when choosing among various instructional media.

ANSWER 1.6-D The media selected should be evaluated in terms of cost and practicality for use in the training program. Factors to be considered in these evaluations include the following:

- Projected life-cycle costs of the selected media
- Budget
- Appropriateness of the media for the number of trainees
- Shelf life of the media versus impact (videos usually have a shelf-life of two to three years)
- Lead time required to produce or procure the media

Technical Training Competency 1.6

EXERCISE 1.6-E List some of the guidelines for developing new or modifying existing instructional materials such as job aids, illustrations, etc.

- ANSWER 1.6-E
- Instructional materials should be consistent with the learning objectives, reinforcing their intent.
 - Locate the materials on a separate page in close proximity to related information.
 - The reading level of training materials should be consistent with the expected entry-level skills and knowledge of the trainees.

EXERCISE 1.6-F Explain how each of the following processes helps to validate your training materials:

- Technical/subject matter expert review
- Peer review
- Small-group evaluation
- First/trial run

ANSWER 1.6-F

Validation Process	How the Process Facilitates Validation
Technical/subject matter expert review	The technical review is performed to ensure the training materials are technically accurate, current, and consistent with facility systems, equipment, and procedures. The review should be conducted by a subject matter expert (SME) who provides feedback to the material developer. All materials should be reviewed, and identified deficiencies should be corrected. This review should be coordinated as materials are being developed.
Peer review	The peer review validates the training and development design techniques as being appropriate and feasible. The peer reviewer(s) ensures that the training materials (1) meet the needs of the target audience, (2) are instructionally sound, (3) promote the intent of the course objectives, and (4) match the client specifications.

Technical Training Competency 1.6

Validation Process	How the Process Facilitates Validation
Small-group evaluation	<p>After revisions from the technical and peer reviews have been made, a tryout of the materials should be conducted on a small group of trainees. The following activities should be included:</p> <ul style="list-style-type: none">• Monitor trainees to determine if the presentation of material and directions for study are clear and easily understood.• Document modifications or clarifications.• Record trainee questions that relate to the effectiveness of the training.• Document the time taken for each training segment.• Identify test items performed incorrectly.• Discuss or request a written evaluation by participants. Include the following:<ul style="list-style-type: none">- Difficulty of material- Length of training time- Amount of material covered- Clarity of material- Terminology used in material- Pace of the training- Structure and sequence of material- Quantity and quality of exercises- Relevance of training to job performance
First/trial run	<p>The first run verifies the usability of the training material under intended conditions and confirms the revisions made to the material during the technical review and small-group evaluation. Use the evaluation techniques listed above.</p>